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# **Notice of Allowability**

**Application No.**

09/785,780

**Examiner**

Phuong Phu

**Applicant(s)**

EHRMANN, FREDERIQUE

**Art Unit**

2611

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 10/19/06.
2. ☒ The allowed claim(s) is/are 1-24,26-32 and 35-61.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## **Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

### **EXAMINER'S AMENDMENT**

1. This Office Action is responsive to the Amendment filed on 10/19/06.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

#### **IN THE ABSTRACT:**

-On lines 1 and 2, the phrase "means of an error correcting code" is changed to --a use of an error correcting code--.

3. Note that the above amendment is needed because the form and legal phraseology often used in patent claims, such as "means" should be avoided in patent abstracts. See MPEP 608.01(b).

### **REASONS FOR ALLOWANCE**

4. Claims 1-24, 26-32, and 35-61 are allowed.
5. The following is an examiner's statement of reasons for allowance:

-Regarding to independent claims 1 and 61, none of prior of record teaches or suggests a method including a frequency mapping operation of associating with a sequence of encoded symbols K frequency symbols in a frequency space consisting of an ordered series of  $2^p$  increasing frequencies, periodically spaced apart and associated with an amplitude, each of said K frequency symbols representing N encoded symbols, p, K and N being strictly positive integers; an inverse transformation operation of applying to the K frequency symbols a reversible

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transformation including a multiplication by an invertible matrix of size  $N \times N$ , so as to obtain inverse transform signals; and a transmission operation of sending over a transmission channel signals obtained from said inverse transform signals in which there exists a  $K$ -tuple of positive integers  $n_1, n_2, \dots, n_K$ , at least one of which is strictly positive, such that, for an integer  $i$  varying from 1 to  $K$ , after periodic extraction of one frequency out of  $2^{n_i}$  amongst the frequencies of the  $i^{\text{th}}$  of said  $K$  frequency symbols, thus forming a reduced frequency symbol with  $2^{p-n_i}$  frequencies, a set of  $K$  reduced frequency symbols is obtained, representing said original information sequence, with a view to a complete or partial decoding.

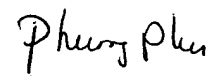
-Regarding to independent claim 10, none of prior art of record teaches or suggests a device including frequency mapping means, for associating with said sequence of encoded symbols  $K$  frequency symbols in a frequency space consisting of an ordered sequence of  $2^p$  increasing frequencies periodically spaced apart and associated with an amplitude, each of said  $K$  frequency symbols representing  $N$  encoded symbols,  $p$ ,  $K$  and  $N$  being strictly positive integers; inverse transformation means, for applying to said  $K$  frequency symbols a reversible transformation including a multiplication by an invertible matrix with a size  $N \times N$ , so as to obtain inverse transform signals; and transmission means, for sending over a transmission channel signals obtained from said inverse transform signals in which there exists a  $K$ -tuple of positive integers  $n_1, n_2, \dots, n_K$ , at least one of which is strictly positive, such that, for an integer  $i$  varying from 1 to  $K$ , after periodic extraction of one frequency out of  $2^{n_i}$  amongst the frequencies of the  $i^{\text{th}}$  of said  $K$  frequency symbols, thus forming a reduced frequency symbol with  $2^{p-n_i}$  frequencies, a set of  $K$  reduced frequency symbols is obtained, representing said original information sequence, with a view to a complete or partial decoding.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (8:00 AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Phuong Phu  
11/02/06

**PHUONG PHU**  
**PRIMARY EXAMINER**

Phuong Phu  
Primary Examiner  
Art Unit 2611